HWP SERIES FORCED CIRCULATION HEATER
USER MANUAL

SmartGen

ZHENGZHOU SMARTGEN TECHNOLOGY CO.,LTD

Chinese trademark

English trademark

SmartGen — make your generator ***smart***

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If colors of actual products are different from those mentioned within this manual, please take the actual product as the standard.

Software Version

Date	Version	Note
2014-07-08	1.0	Original release.
2015-04-10	1.1	Add types HWP60, HWP90, HWP120, remove type HWP30.

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1 OVERVIEW

HWP series forced circulation water engine heater is composed of 3 parts: control section, water pump and water heater.

If during cranking the outside temperature is lower than 4ºC, engine coolant and lubricant may condense into solid state and lose their lubricating and cooling properties, which can damage the engine. Engine heater should be installed to ensure normal starting and running of the engine when the outside temperature is lower than 4 ºC.

HWP series forced circulation water engine heater combines the following features: cast stainless steel inner pipes and end closure with high corrosion resistance; heating and overheat light indicators; user-defined thermostat set point; dry heating and overheat protection.

This product is suitable for various engine with (15~100)L displacement.

Please login our company's official website (http://www.smartgen.cn/) to select heaters.

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2 PERFORMANCE AND CHARACTERISTICS

1 Control system: Switch power supply structure; suitable for widely voltage range; reliable system;

2 Water pump: DC24V power supply, small size, light weight, reliable and safe; long lifetime.

3 Control section:microprocessor design; high sampling precision and accuracy control due to PT100 temperature sampling. Coolant temperature can be set via the control panel. Four digital LED display, coolant temperature and all kinds of set point temperature can be displayed clearly.

4 Dry heating and overheat protection.

5 Separately control of water pump and water heater: power on the water pump and water heater synchronously, once the set temperature has reached, water heater will be powered off firstly, after 3s, following is water pump. The goal is to prevent heat concentration and significantly prolong water pump lifetime.

6 Manual test: test the water heater and water pump are normally or not via panel button.

7 Fine cast aluminum enclosure and special surface treatment with high corrosion resistance and high/low temperature capability;

8 Stainless steel inner pipes and end closure with high corrosion resistance;

9 There is a water drain valve with seal ring on the bottom of the heater so as to be used when needed;

10 There is one-way inlet valve on the water inlet.

11 This product can work normally at -25℃ temperature.

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3 SPECIFICATION

Type	HWP40	HWP60	HWP90	HWP120
Rated Power	4000W	6000W	9000W	12000W
Rated Voltage	AC 240V	420V		
Rated Current	16.7A	8.3A	12.5A	16.7A
Phase	Single phase	Three phase		
Engine Displacement (L)	15~30	25~50	50~75	75~100
Thermostat Range	Off: (5~99)ºC On: (0~94)ºC			
Default Thermostat Range	Off: (40±2)ºC On: (25±2)ºC			
Overheating Thermostat Range	Off: (95±3)ºC On: (80±6)ºC			
Insulating Resistance	≥50MΩ			
Electrical Strength	AC 1.5kV 1min			
Inlet/Outlet Size	3/4”(φ19.5mm)			
Max. Water Pressure	0.5MPa			
Pump Flow Velocity	12L/min (4m of lift)			
Protection Level	IP54			
Vibration Resistance	(5~8)Hz Amplitude±7.5mm Triaxial (8~500)Hz a=2g Triaxial			
Shock Resistance	Half-sine Wave; a_{peak}=50g; Triaxial			
Working Conditions	-25 ºC~+70 ºC			
Storage Conditions	-30 ºC~+70 ºC			
Case Dimensions	444 mm×296 mm×330 mm			
Weight	13kg			

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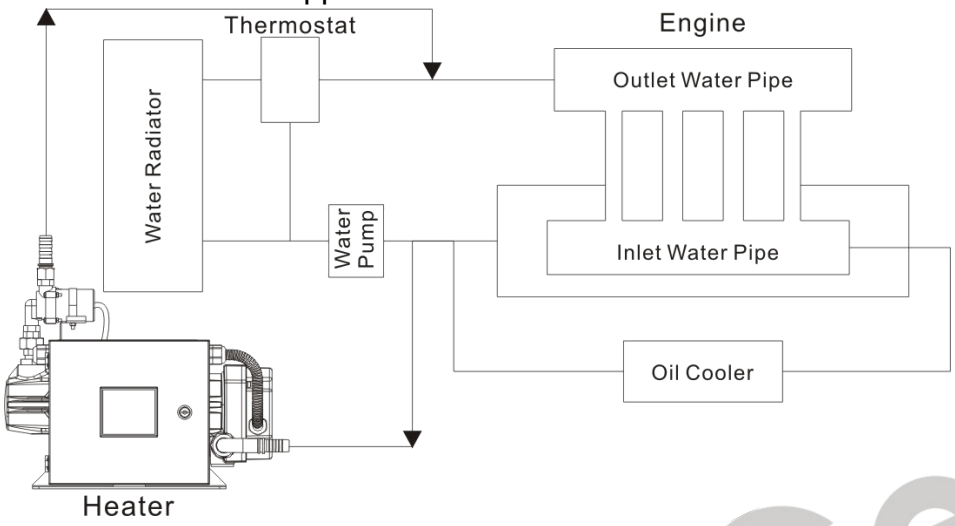
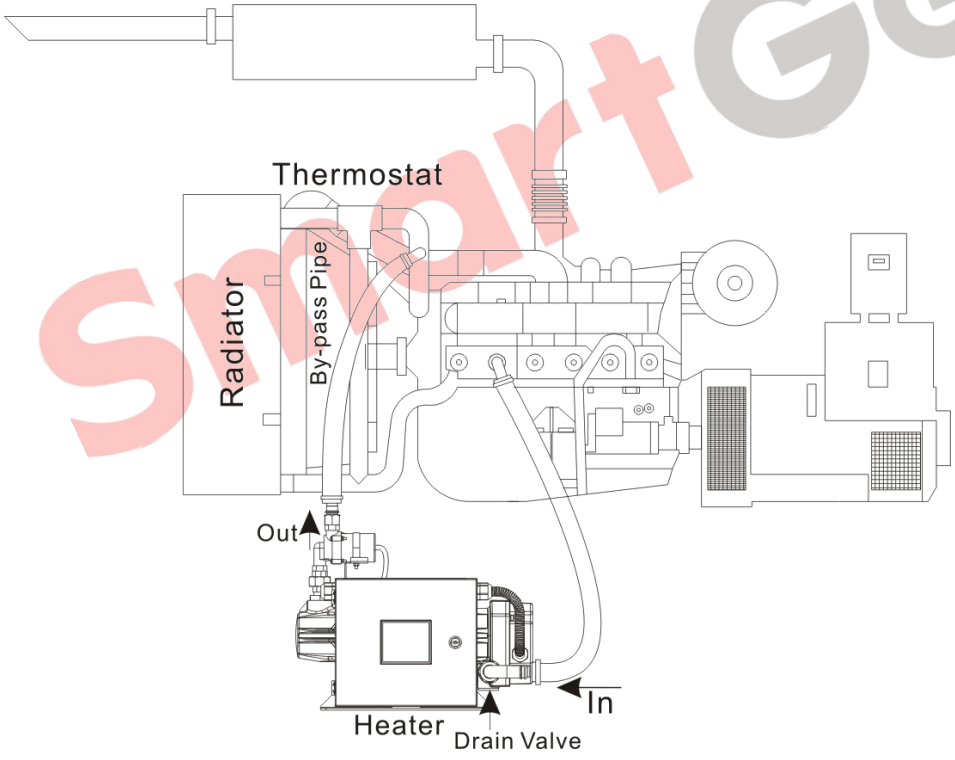
4 HEATER INSTALLATION

Please install the heater vertically according to the diagram before use. Paying attention to direction of heater inlet and outlet, and ensure that the heater position is below the lowest water lever of the engine and that all the air is exhausted out of the heater and it is topped off with coolant.





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5 OPERATING INSTRUCTIONS

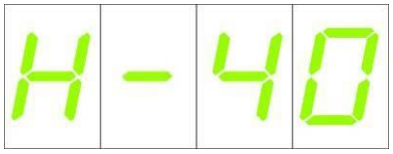
◎ PANEL AND BUTTON

Button	Definition	Description
	Test	Pressing this button will test-run the machine.
	Lamp Test	All indicators will be illuminated when the button is pressed.
	Set	Using this button you can set the temperature value.
	Turn Page	Using this button you can scroll pages of the LED Nixie Tube; Adjust the value.

◎ DISPLAY DESCRIPTION

The heater is heating on when the “Heating” indicator is illuminated while the Thermostat is open and the heater stops heating when the “Overheat” indicator is flashing.

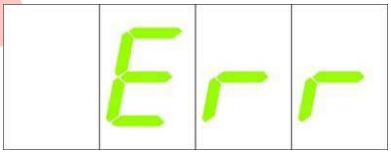
Temp. Display: OFF



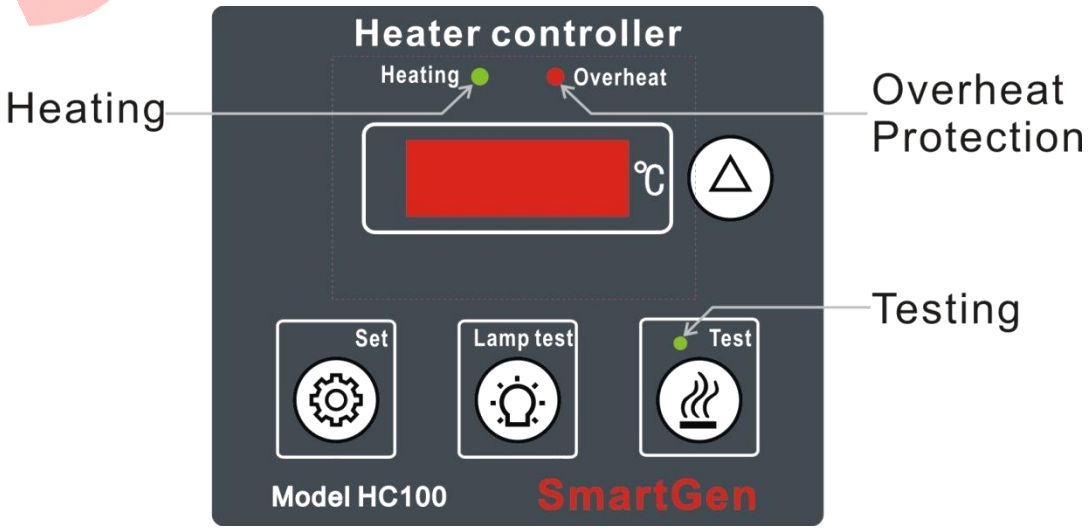
Temp. Display: ON

Temp. Display: Current Temp.

Alarm: Sensor Abnormal



◎ PANEL DESCRIPTION



◎ OPERATION DESCRIPTION

★Turn Page（△）

Using this button you can scroll pages of the LED Nixie Tube and adjust the value.

★Test（）

If the water temperature has exceeded the preset “ON” temperature, pressing this button will test-run the heater, after 3s, it is turn into Auto mode automatically.

★Lamp Test（）

All indicators will be illuminated when the button is pressed.

★Set（）

Pressing this button will enter into setting interface, as shown:

(Letter “H” means that it is the preset “OFF” temperature, here we take 40℃ as example)，the first digital is flashing and you can adjust it by pressing △ button. Then press button, the second digital will flash and the adjust way is same as the first digital. Press , as shown:

(Letter “L” means that it is the preset “ON” temperature, here we take 25℃ as example)，the first digital is flashing and you can adjust it by pressing △ button. Then press button, the second digital will flash and the adjust way is same as the first digital. After done these, press button, the LED will back to display the current temperature. All the adjustment will be saved and not lost even when power is off.

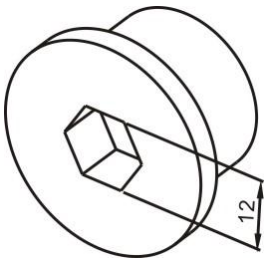
6 USE AND MAINTENANCE

Before starting the machine, ensure that all the air is exhausted out of the heater and it is topped off with coolant. If water is used, please drain it off when generator is stopped to avoid internal corrosion. Otherwise, the remaining water freezes when temperature is lower than 0°C, which can damage the enclosure.

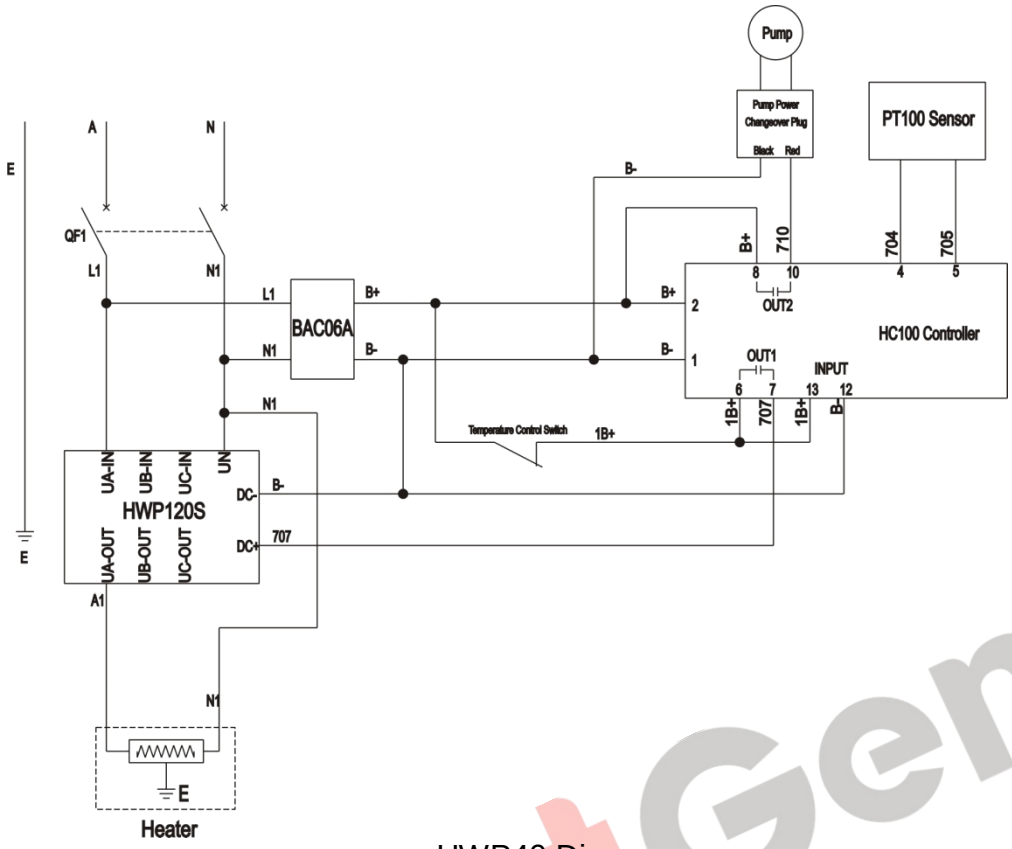
Corresponding antifreeze is strongly recommended.

Earth line must be soundly connected to earth.

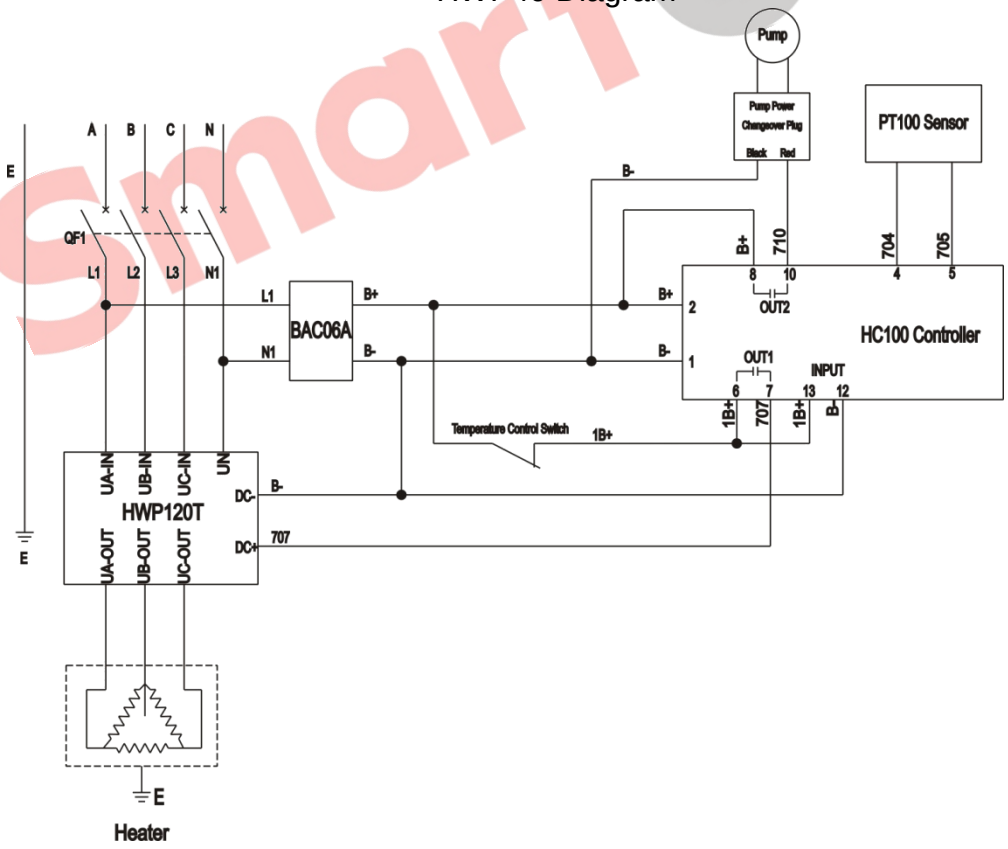
Drain valve: Can be opened or closed using hexagonal tools.



7 CONNECTIONS



HWP40 Diagram



HWP60，HWP90，HWP120 Diagram

Use 4mm^2 power line for tie-in. Ground wire connect to earth

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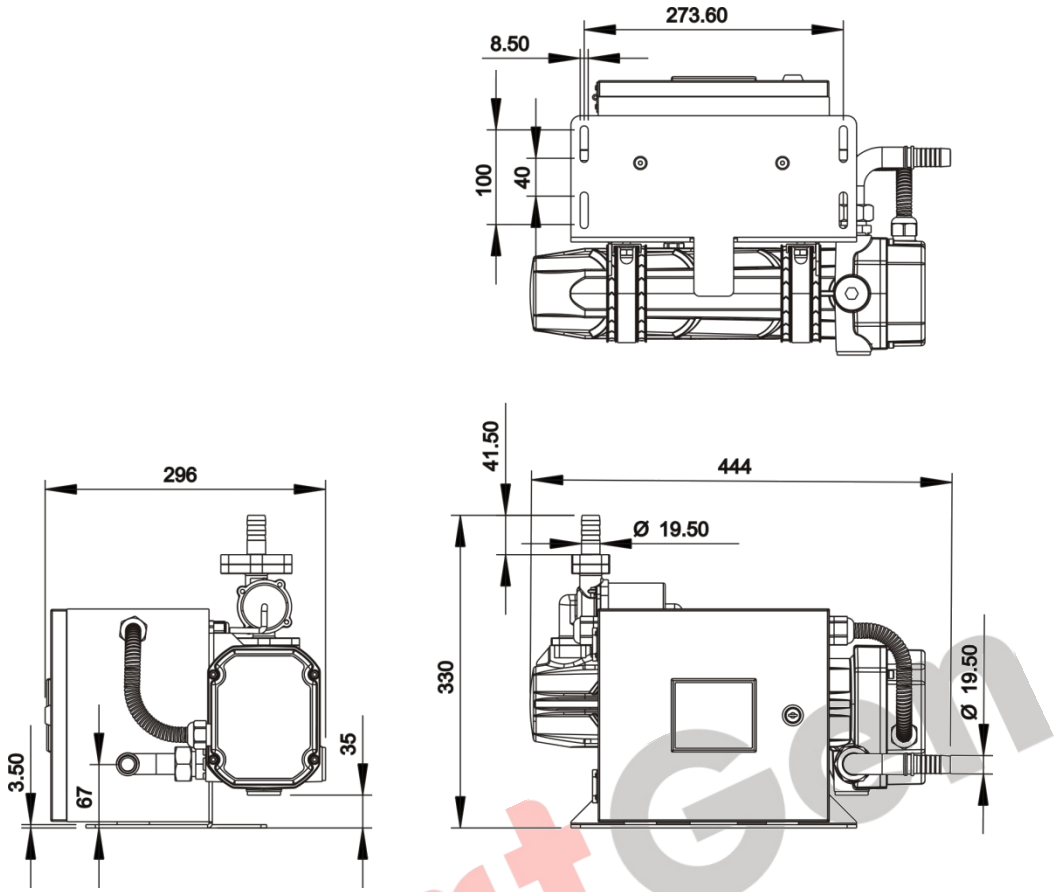
8 CASE AND DIMENSIONS



Note: all the inlets/outlets connectors are Pagoda-shape.

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